WHAT IS CLAIMED AS NEW AND IS INTENDED TO BE SECURED BY LETTERS PATENT IS:

1. An electrolyte membrane comprising:

a precursor membrane, plasma treated in an oxidizing atmosphere, and grafted with a side chain polymer, wherein said side chain polymer comprises at least one proton conductive functional group.

2. The electrolyte membrane of Claim 1, wherein the precursor membrane comprises a polymer.

3. The electrolyte membrane of Claim 2, wherein the polymer is at least one polymer selected from the group consisting of polyethylene, polypropylene, polyvinylchloride, polyvinylidenedichloride, polyvinylflouride, polyvinylidenedifluoride, polytetrafluoroethylene, ethylene-tetrafluoroethylene copolymer, tetrafluoroethylene-perfluoroalkylvinylether copolymer, and tetrafluoroethylene-hexafluoropropylene copolymer.

4. The electrolyte membrane of Claim 1, wherein the side chain polymer is a hydrocarbon polymer to which at least one proton conductive group has been introduced.

5. The electrolyte membrane of Claim 1, wherein the side chain polymer comprises at least one monomer having a proton conductive functional group.

6. The electrolyte membrane of Claim 4, wherein the hydrocarbon polymer is at least one side hydrocarbon polymer selected from the group consisting of poly(chloroalkyl styrene), poly(α-methyl styrene), poly(α-fluorostyrene), poly(p-chloromethyl styrene), polystyrene, and copolymers thereof.

7. The electrolyte membrane of Claim 5, wherein the side chain polymer is selected from the group consisting of polyacrylic acid, polymethacrylic acid, poly(vinyl alkyl sulfonic

acid), an copolymers thereof.

8. The electrolyte membrane of Claim 1, wherein the proton conductive functional group is a sulfonic acid group.

9. The electrolyte membrane of Claim 3, wherein the proton conductive functional group is a sulfonic acid group.

10. The electrolyte membrane of Claim 6, wherein the proton conductive functional group is a sulfonic acid group.

11. The electrolyte membrane of Claim 1, wherein the precursor membrane comprises an ethylene-tetrafluoroethylene copolymer, the side chain polymer comprises polystyrene, and the proton conductive functional group is sulfonic acid.

12. The electrolyte membrane of Claim 1, wherein the precursor membrane comprises polyvinylidenedifluoride, the side chain polymer comprises polystyrene, and the proton conductive functional group is sulfonic acid.

13. A method of producing an electrolyte membrane comprising:

preparing a precursor membrane comprising a polymer which is capable of being graft polymerized;

exposing the surface of the precursor membrane to a plasma in an oxidative atmosphere;

graft-polymerizing a side chain polymer to the plasma treated precursor membrane; and

introducing a proton conductive functional group to the side chain.

14. The method of Claim 13, wherein the precursor membrane comprises a polymer.

15. The method of Claim 14, wherein the polymer is at least one polymer selected from the group consisting of polyethylene, polypropylene, polyvinylchloride, polyvinylidenedichloride, polyvinylflouride, polyvinylidenedifluoride, polytetrafluoroethylene, ethylene-tetrafluoroethylene copolymer, tetrafluoroethylene-perfluoroalkylvinylether copolymer, and tetrafluoroethylene-hexafluoropropylene copolymer.

16. The method of Claim 13, wherein the side chain polymer is a hydrocarbon polymer to which at least one proton conductive group can be introduced.

17. The method of Claim 16, wherein the hydrocarbon polymer is at least one hydrocarbon polymer selected from the group consisting of poly(chloroalkyl styrene), poly(α-methyl styrene), poly(α-fluorostyrene), poly(p-chloromethyl styrene), polystyrene, and copolymers thereof.

18. The method of Claim 13, wherein the proton conductive functional group is a sulfonic acid group.

19. The method of Claim 15, wherein the proton conductive functional group is a sulfonic acid group.

20. The method of Claim 17, wherein the proton conductive functional group is a sulfonic acid group.

21. A membrane made by a process comprising:

preparing a precursor membrane comprising a polymer which is capable of being graft polymerized;

exposing the surface of the precursor membrane to a plasma in an oxidative atmosphere;

graft-polymerizing a side chain polymer to the plasma treated precursor membrane; and

introducing a proton conductive functional group to the side chain.

22. An electrochemical cell comprising the electrolyte membrane of Claim 1.

23. The electrochemical cell of Claim 22 which is a fuel cell.